



UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

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INFORMATION MANAGEMENT  
& TECHNOLOGY DIVISION

SEPTEMBER 28, 1984

B-212494

The Honorable Samuel R. Pierce  
Secretary, Department of  
Housing and Urban Development

Dear Mr. Secretary:

Subject: Opportunities for Public Housing Authorities  
to More Economically and Effectively Develop  
and Acquire Computer-based Management Informa-  
tion Systems (GAO/IMTEC-84-13)

Because of problems we had noted in an earlier review, we recently evaluated the practices followed by Public Housing Authorities (PHAs) in acquiring computer-based management information systems. We also examined the role of the Department of Housing and Urban Development in coordinating these acquisitions. Since 1972, a series of departmental programs have contained provisions that make funds available to the PHAs for development and acquisition of computer-based information systems. A primary goal is more effective administration of the 2,700 PHAs that operate and manage the public housing programs within their geographical areas. The operating subsidies HUD provides to these PHAs rose from \$245 million in fiscal year 1972 to \$1.3 billion in fiscal year 1983.

Due to the lack of departmental coordination PHAs are developing systems that are redundant, costly, and so specialized that they lack transferability and potential for sharing of software applications. We believe the Department should give PHAs better guidance and more technical assistance, and we see a need for greater coordination so that PHA acquisition and development of computer-based information systems can be more cost-effective.

In addition, PHAs are not reporting timely and accurate budgetary, financial, and statistical data to the Department for management decisionmaking. We conclude that a long-range program should be initiated to link the PHA and HUD computer systems. This would improve reporting and reduce the cost of both reporting and processing. The Department should promote the use of the Federal Information Processing Standards (Publication 38) in its own development of cost-effective systems, and in the PHA's efforts to automate their systems.



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OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of our survey was to determine how effective the Department has been in overseeing PHA computer acquisitions and the nature and extent of the guidance and technical assistance provided to the PHAs by the Department.

We did our work at departmental headquarters in Washington, D.C.; at Region III in Philadelphia; and at area offices in Philadelphia and Pittsburgh. We interviewed the officials in the Department who administered programs funding the PHAs' acquisition of computerized systems. We also visited PHAs in Lebanon, Pennsylvania; Wilmington, Delaware; and High Point, North Carolina; and the central computer facility of the Western Pennsylvania Housing Consortium--a group of eight PHAs--in Pittsburgh. We performed our work in accordance with generally accepted government auditing standards.

UNCOORDINATED AND AUTONOMOUS  
DEVELOPMENT PROJECTS RESULTED IN  
INEFFICIENT USE OF ADP RESOURCES

The Office of Management and Budget's Circular A-102 requires federal grantor departments and agencies to monitor the use of federal funds for grants such as those that funded PHA automation. These monitoring responsibilities include ensuring that funds are expended efficiently and economically. Furthermore, accepted management principles and practices dictate that the development of computerized systems should be coordinated. Projects that address common functions and system applications should capitalize on previous and ongoing efforts, so that duplicative, redundant, and wasteful systems development can be avoided.

The Department has encouraged PHAs to be innovative in designing management information systems. It has allowed PHAs independence in acquiring systems to meet their needs. While this has stimulated PHA and private sector interest in designing and developing automated systems, it has resulted in costly, uncoordinated systems with a variety of computers and languages that inhibit the sharing of software among PHAs.

PHAs independently developed  
similar systems to meet common functions

Funding for automatic data processing equipment, software, and related services has been provided to PHAs over a 12-year period by a series of public housing assistance programs. Our survey disclosed that PHAs were given wide autonomy in using these funds to develop automated systems without clear central guidance and coordination. HUD's policy of encouraging PHAs to develop automated systems on their own began in 1972, with funding of the Public Housing Management Improvement Program; it continued under the Target Projects Program, Public Housing Urban Initiatives Program, and the Comprehensive Improvement Assistance Program.

The Public Housing Management Improvement Program involved 3 years of research and demonstration. It called for the development, testing, and evaluation of management systems and approaches by the PHAs with the goal of increasing PHA efficiency and effectiveness in the management of low-income housing. HUD did not develop a uniform approach for developing and acquiring automated systems for all PHAs. Instead, the Department allowed the 11 participating PHAs flexibility in designing systems to meet their individual needs.

The Public Housing Urban Initiatives Program, initiated in 1978, involved 34 large PHAs (those with more than 1,250 dwelling units) that were encouraged by the Department to convert their centralized, manual reporting systems to automated Project-Based-Budgeting (PBB) accounting systems. The automated systems were to provide detailed cost and income projections and expenditure controls, decentralized to the individual housing project level. A consulting firm was engaged by the Department to first survey the PHAs that participated in this program and then, using the experiences of the participants, prepare a guidebook for all PHAs on how a PBB system should be implemented. The guidebook produced did not address the development of a standard accounting system that could be applied to all PHAs. We discussed the Department's role with the consultant, who indicated that the Department did not provide guidance or direction for developing a standard approach. As a result, each system is virtually unique and not transferable.

Moreover, we noted problems associated with other development efforts, for example:

- One PHA acquired an automated system but abandoned it after several years of trying to make it work.
- Another PHA acquired a computer system which was to cost \$688,800 under a lease-purchase agreement for a 6-year period. The PHA discontinued use of this computer 3 years later because the system was too complex and expensive to operate, and because an additional expenditure of \$100,000 for computer programs was required to make the system work effectively.
- A PHA replaced its system earlier than planned because it was not meeting information needs.
- Other PHAs acquired software for their automated systems and incurred additional costs to correct software deficiencies.

Departmental guidance and technical assistance would provide all PHAs with a common approach to developing, installing, and operating an automated system. Adopting such an approach could result in an effective, efficient, and less costly system for all

PHAs. It would also promote the sharing and transferability of proven software to process applications and functions common to all PHAs.

PHAs were not adequately sharing  
computer-based systems

Since PHAs all perform essentially the same functions, we believe a system developed for one should have general applicability to others. A 1980 survey of 249 PHAs, conducted by the National Association of Housing and Redevelopment Officials, disclosed that more than 50 percent of the PHAs used computers for such universal applications as tenant accounting, rent collection, payroll, accounts payable, and general ledger accounts. But the survey also revealed that the PHAs had acquired computerized systems that used a variety of computer languages. Such variations in language inhibit the transferability and sharing of applications software. The following case illustrates these conditions: The project manager for a Texas consortium of 13 PHAs seeking to acquire computer systems told us she considered adopting one of the computerized systems operated by another PHA. She found, however, that the cost of modifying or adopting software, including the conversion of software programs, would have been prohibitive.

On the other hand, we noted the following approaches PHAs have taken to share the costs of information systems.

--A group of nine PHAs in Ohio hired a consultant to (1) develop a Request for Proposals for computer equipment and (2) evaluate the proposals submitted. The intent of this joint effort was to obtain a quantity discount on equipment to meet the combined hardware needs. Each PHA was to receive and operate its own stand-alone system.

--Eight PHAs in Western Pennsylvania formed a consortium and procured and installed a single, centralized computer facility to meet their combined information needs.

--A PHA in North Carolina, which had developed a computerized system with federal funds, offered the design to other PHAs for their use at no cost.

We believe the Department needs to promote such systems sharing. While data on the amounts expended by the PHAs for systems acquisition are not available, it is generally acknowledged that the costs have been significant. A consultant's report on a sampling of 23 of the PHAs that participated in the Urban Initiatives Program showed acquisition costs (including costs of both hardware and software) ranging from \$110,000 to \$150,000. Projected to the 23 PHAs in the sample, this represents a total departmental funding commitment of \$2.5 to \$3.5 million for costs associated with acquisition of information systems. Sharing might have significantly reduced these costs. Here again, the Department and the PHAs could

benefit from the application of guidance, such as Federal Information Processing Standards Publication 38. This is widely accepted as a guide to agencies and grantees as they plan and develop automated systems. For more assistance, GAO has developed a framework of principles and procedures, "Government-Wide Guidelines and Management Assistance Center Needed to Improve ADP Systems Development" (AFMD-81-28, Feb. 20, 1981).

MANUAL REPORTING SYSTEM DID NOT MEET  
THE DEPARTMENT'S INFORMATION NEEDS

The process PHAs use to gather, maintain, and report financial and statistical data to the Department is costly and the information produced is not timely or accurate. The current reporting system is essentially manual. Neither the Department nor the PHAs are capitalizing on available automation technologies to improve their data collection and reporting.

Federal policy requires the Department to monitor the use of funds it provides through federal grants. HUD's own policy commits it to assisting PHAs in improving the flow of information. Good management practices dictate that the Department direct and promote the development and implementation of an efficient and economical information collection and reporting system. Moreover, to be effective, the system should meet the information needs of the Department and the PHAs.

The Paperwork Reduction Act of 1980 (Public Law 96-511) states a number of broad objectives for improving the planning and management of federal information resources. The act calls for minimizing the cost to the federal government of collecting, maintaining, using, and disseminating information, and for making maximum use of the information collected. The act also seeks to ensure that automatic data processing and telecommunications technologies are planned, acquired, and used by the federal government to improve service delivery and program management, and to reduce the information processing burden for the federal government and those who provide the information.

In our recent report on the Department's management,<sup>1</sup> we pointed to the need for a long-range plan for automatic data processing. A long-range plan adhering to the principles of the Paperwork Reduction Act would provide benefits in accuracy, time, and dollars for the Department and the PHAs through automation of the information reporting process. Given the state of the art of computer and communications technology and the increasing use of computers by the PHAs, arrangements could be worked out for an eventual direct electronic interface between their computers and the Department's.

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<sup>1</sup>"Increasing the Department of Housing and Urban Development's Effectiveness Through Improved Management" (GAO/RCED-84-9, Jan. 10, 1984).

Manually prepared reports have often been incomplete or inaccurate

Legislation creating the various housing programs authorizes the Department to require reports from program participants. These are used in monitoring a program's progress and its compliance with applicable regulations and rules. In this regard PHAs submit financial reports, such as operating budgets, balance sheets, and statements of financial receipts with supporting schedules. They also submit statistical reports on occupancy and other aspects of PHA operations.

The Department provides forms to the PHAs identifying the information that is needed. In general, PHAs prepare the forms manually and submit them to the Department; there they must be converted to machine-readable format for input to and processing by the Department's computers.

Evidence exists that this inefficient handling of data flow causes problems for HUD. In the recent report on the Department's management effectiveness referred to earlier, we noted that HUD's management information systems were not providing enough timely or accurate data for proper accountability and control over housing programs. We cited a 1981 consultant's study which found that the administration of the Department's billion dollar operating subsidy program "suffers from a lack of reliable and detailed data on PHA financial conditions, building conditions, and tenant characteristics..."

The study focused on the Public Housing Authority Operating Statement System. This system was designed to accumulate PHA accounting and financial data that could be used by the Department to (1) monitor program performance, (2) study the costs of public housing, and (3) determine changes needed in the formula used to distribute more than \$1 billion annually to PHAs for operating expenses. According to officials at Department headquarters, the statements prepared by the PHAs in 1980 were often incomplete or inaccurate. As a result, only half of the information required for managerial decisions had been entered into the system.

The Department has not taken action to develop an automated reporting system

Although the Department recognized that the computerization of the PHAs provided opportunities for more economical and timely transfer of data from the PHAs to the Department, it has not implemented an automated data communications system.

In November 1982, the then Acting Regional Administrator for HUD's Region V suggested in a memorandum to the Assistant Secretary for Housing--Federal Housing Commissioner that PHAs could reduce costs and report more promptly if they could submit data on computer-generated forms. He pointed out that the data produced by the PHAs' computer systems had to be "laboriously copied to Depart-

mental forms, balanced, and proofread." He estimated that the PHAs with computer systems spent a total of \$750,000 each year to manually transfer computer data to the Department forms.

In a memorandum issued to all regional administrators and area managers in March 1983, the assistant secretary endorsed adoption of the regional administrator's suggestion. He also encouraged the use of "data reporting techniques that completely bypass computer-generated forms either by transmitting data on magnetic tape or via direct electronic interface" between PHA and Department computers where most of the data on the form were entered from a "Department-automated system." At the close of our review the Department had not taken action to implement an automated data communications system.

These objectives can be achieved only as part of a sustained long-range effort. HUD would have to enlist the cooperation of the PHAs and address such technological impediments as incompatibilities in hardware, software, and communications equipment.

### CONCLUSION

The present system of allowing PHAs to independently develop and acquire computer-based information systems has resulted in systems that are unique and costly. It does not take advantage of the potential for transferability and sharing of software applications that exists among PHAs. We believe that more departmental guidance and assistance could help the PHAs avoid duplicate and costly development projects while promoting the development of systems to meet common information needs.

The manual systems used by the 2,700 PHAs to report financial and management information to the Department are costly and the information produced is often not timely or accurate. Compatible, automated, PHA and Department information systems could be designed and linked via telecommunication devices to provide more timely and economical reporting.

### RECOMMENDATIONS

To avoid duplicate and costly development and acquisition of computerized systems, we recommend that the Secretary, Department of Housing and Urban Development:

- Provide central management direction and technical assistance to PHAs for the acquisition and development of computer-based management information systems.

To improve the reporting of financial and management information by PHAs to the Department, we recommend that the Secretary:

- Guide and coordinate the development of compatible automated systems to provide for the direct interface and linkage of the PHAs' and the Department's computer systems.

AGENCY COMMENTS AND OUR EVALUATION

In responding to our draft report, the Department of Housing and Urban Development agreed that improvement is needed in the public housing agencies' ADP capability. (See encl. I.)

The Department concurred with the report's conclusions and recommendations and has initiated actions to correct deficiencies. For instance, the Department is evaluating the extent to which certain PHA systems (1) are transferable to other PHAs and (2) will provide for direct reporting to HUD. In addition, field offices have begun discussions with PHAs to share knowledge of ADP systems and to devise an approach to eliminate duplication. Field offices plan to share the results of this effort during the next fiscal year.

We believe these actions are significant first steps toward improving oversight of PHA computer activities and providing the guidance and technical assistance the PHAs need.

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As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement of actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report, and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report. We would appreciate receiving a copy of your statement when it is provided to the congressional committees.

We are sending copies of this report to the Chairmen, House Committees on Appropriations and Government Operations and Senate Committees on Appropriations and Governmental Affairs, and to the Director, Office of Management and Budget.

Sincerely yours,

  
Warren Reed  
Director



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, D.C. 20410

OFFICE OF THE ASSISTANT SECRETARY  
FOR PUBLIC AND INDIAN HOUSING

September 4, 1984

MEMORANDUM FOR: Warren G. Reed, Director  
Information Management and Technology Division  
General Accounting Office

*Warren T. Lindquist*  
FROM: Warren T. Lindquist, Assistant Secretary for Public and  
Indian Housing, P

SUBJECT: (GAO) HO-819: Draft Report: "Opportunities for Public Housing  
Authorities to More Economically and Effectively Develop and  
Acquire Computer-Based Management Information Systems"  
(June 15, 1984)

The Department of Housing and Urban Development has reviewed the report and agrees that there is a need to improve the Automated Data Processing (ADP) capability of public housing agencies (PHAs). In recognition of this need, the Department has already taken and plans to take additional steps to address this issue.

I have made the improvement of data systems a priority of my administration of public housing. In so doing, we have taken the initial steps to allow PHAs to share systems that evidence adequate capabilities for the administration of public housing operations. An initial trip to the Lucas County Housing Authority was recently made by public housing staff in conjunction with the staff of the Office of Finance and Accounts. The purpose of this trip was to review the system used by that Authority and to determine whether it is transferable to other PHAs and whether it will provide for direct reporting to HUD. This is the first of several trips planned. Once this system and others have been determined to be transferable or not, we will assure that all PHAs are aware of these systems and their potential applicability to their operations.

In addition, we are planning to have a conference in the early fall for the purpose of discussing with selected PHAs the issues related to implementing project based-budgeting. Once this conference has been held we will take the necessary follow-up steps towards implementation.

Not only are these steps being taken at the national level, but our Field staff are initiating at that level certain activities designed to assure quality ADP operations of PHAs within Regional boundaries. Region III, Philadelphia, has begun discussions with PHAs in that Region aimed at sharing knowledge of ADP systems and promulgating an approach designed to eliminate duplication. Several meetings have been held in this regard and the results will be shared during the next fiscal year.

As was also discussed in the recent joint meeting, there are similar improvement initiatives underway in our centrally designed and managed automated systems. Here, again, we recognize the need for major improvements in the Department's systems and the provision for eventual direct electronic interface with the PHA systems. The Department has placed renewed emphasis on these systems and my Office is working closely with the Office of Information Policies and Systems in these efforts.

In all of these efforts, it is our goal to work with PHAs and to provide the type of management direction and technical assistance deemed necessary to assure adequate ADP systems at the PHA level.